FOREST INSECT CONDITIONS ON THE

CHALLIS NATIONAL FOREST

1966

The following report depicts major forest insect problems encountered on the Challis National Forest during 1966. Information for the report was accumulated from aerial detection flights and on-the-ground biological evaluations.

Major forest insect activity was centered around epidemic populations of the spruce budworm during the past field season. The infestation that has been persistent for several years showed a marked decline. Specific information on this will be given later in the report. Elsewhere, attacks by the Douglas-fir beetle remained at about the same level as has been noted for the past two years. Mountain pine beetle activity was at a low ebb and infestations in Copper Basin have virtually dropped out of sight. This was also the case of the infestations in Loon Creek. A more detailed discussion of the foregoing problems follows:

SPRUCE BUDWORM, Choristoneura fumiferana (Clem.)

Spruce budworm activity has been at epidemic levels on the Challis National Forest for several years and is part of a four forest complex known as the Salmon River infestation. In 1964, 454,000 acres were defoliated. In 1965, a slight drop to 401,300 acres was observed. During 1966, aerial and ground surveys showed that a drastic reduction in the size and intensity of the budworm population had occurred. A total of 169,100 acres of defoliated Douglas-fir and true firs were mapped in. This was a 42% reduction from the 1965 infestation. Infestation by years and intensity with total number of acres affected is shown in the following table:

Year	Light	Medium	Heavy	Total A.
1964	79,000	132,000	243,000	454,000
1965	83,200	20,500	297,600	401,300
1966	162,100	7,000		169,100

The decided downward trend in budworm defoliation coincided precisely with conditions observed on the bordering Payette, Salmon, and Boise National Forests where populations dropped off drastically during the past year. The reasons for these reductions in budworm activity have

pretty well been narrowed to effects of adverse weather. There are two periods in this pest's life cycle w en the larvae are highly susceptible to the effects of cold weather; first, w en the tiny larvae hatch from the egg and start crawling to their winter hibernaculum sites; second, when the larvae leave their hibernaculae and start searching for new buds which they mine. These two periods occur in the fall and spring, respectively. Coincident with these developmental times in the insects' life cycle, periods of hard freezes ere experienced in 1965 (fall) and in the spring of 1966. It is felt that these timely freezes were primarily responsible for the current population reductions. Also, there was undoubtedly a supplementary impact on t e budworm from nativ predator-parasite complexes that have been associated with populations for a considerable period of time.

In past years entomologists have made egg mass surveys s ortly after the adults have emerged and co.pleted their egg laying. The num er of egg masses are counted per t ousand square inches of foliage and predictions made as to the possible trend of the infestation for the forthcoming year. In 1965 freezing weather occurred after egg masses had been collected. The egg mass counts indicated that budworm populations were expected to remain at relatively high levels in 1966. Shortly after egg ss collections were made young larvae emerged and were cau ht by f eezing eather. We ere not aware of what h d happened until the following pring.

The first indication of overall population reductions occurred w en entomologists began sampling defoliated areas in prep ration for the Salmon spruce budworm control project. As sampling continued it became evident that populations were so light that the project s ould be cancelled. In late June the main Malathion project was cancelled out. However, the Zectran study project was still being considered s a going oper tion. A crash program of evaluations w s undertaken to find an area suitable for the Zectran test. It was at this time that light populations of budworm were found on t e Challis Forest. Areas that had been oderately to heavily defoliated in 1965 were supporting only light populations and the plans to move the Zectran project to the Challis Forest had to be cancelled.

Even though the total number of budworm larvae had been reduced, surviving residual populations were still present. These individuals are consi ered a biological reservoir and have the potential to cause reinfestions if biological and climatological factors are suitable for their development in the forthcoming year. At the end of this year's egg mass sampling, a total of ten plots were sampled on the forest. Nine of the ten plots showed a predicted defoliation of less than 15% for 1967. orse Creek was the only area where predicted defoliation goes from 25 to 50 per cent.

In summary, budworm populations have slowed down due to the effects of adverse weather conditions at two critical stages in their life cycle. Also, native predators and parasites have added impetus to the reduction in the total numbers of the pests. Adverse weather conditions are extremely helpful when they occur but cannot be counted on from year to year. It is felt that the Douglas-fir and true fir stands will have at least one season to partially recuperate.

DOUGLAS-FIR BEETLE, Dendroctonus pseudotsugae (Hopk.)

Douglas-fir beetle attacks on the forest in 1966 were characterized by small group-type infestations. At the present time no large epidemic centers have been detected.

Since 1952, Douglas-fir beetle populations in southern Idaho have shown a slow declining trend. The only exception to this is the epidemic on the Sublette Division of the Sawtooth National Forest. During the winter of 1964 and 1965, heavy snow falls coupled with severe winds toppled thousands of Douglas-firs throughout southwestern Idaho. The Challis Forest was no exception and several areas were located where from one to 150 stems per acre had been felled. At that time it was predicted there could possibly be an upsurge in Douglas-fir beetle activity during the summer of 1966. To date we have not noted any such increase in activity. It is expected that Douglas-fir beetle populations will remain at about their present level during 1967.

MOUNTAIN PINE BEETLE, Dendroctonus ponderosae Hopk.

Mountain pine beetle populations during the 1966 season remained at endemic levels throughout the forest. The Copper Basin country which has had a history of sporadic infestations showed only limited fading this year. In Boone Creek, the small infestation of approximately 200 trees that has been persisting for two years, appears to be dropping off in intensity. This year only about 100 to 150 trees were observed to be fading. Work scheduling did not permit an evaluation of this infestation and the exact status of the broods at this time is not known. However, from the decreasing number of faded trees found during the aerial survey flights, it is expected that the infestation will remain at about the same level during 1967.

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